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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,719	03/19/2004	Nusrallah Jubran	3216.58US02	7514

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PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.  
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MINNEAPOLIS, MN 55402-2100

EXAMINER
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NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/804,719

Applicant(s)

JUBRAN ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-14,17-19,28 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-14, 17,18,28,31,and 32 is/are rejected.
- 7) ☒ Claim(s) 6,19 and 33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

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1. The examiner acknowledges the cancellation of claims 2, 3, 15, 16, 29, and 30, and the amendments to claims 1, 4, 6, 10, 11, 17, 19, 28, 31, and 33 filed on Aug. 31, 2006. Claims 1, 4-14, 17-19, 28, and 31-33 are pending.

The "Amendment to the specification" section and the replacement abstract filed on Dec. 13, 2006, have been entered.

2. The "Amendment to the claims" section, the "Amendment to the specification" section, and the replacement abstract filed on Aug. 31, 2006, did not comply with 37 CFR 1.121 for the reasons discussed in the Notice of non-compliant amendment mailed on Nov. 13, 2006. Accordingly, those amendment sections and the replacement abstract have not been entered.

3. The objection to the abstract set forth in the office action mailed on May 31, 2006, paragraph 5, has been withdrawn in response to the replacement abstract filed on Dec. 13, 2006.

The objections to the specification set forth in the office action mailed on May 31, 2006, paragraph 6, items (2) and (4), have been withdrawn in response to the amended paragraphs beginning at page 12, line 1, and page 14, lines 3 and 20, of the specification, filed on Dec. 13, 2006, and to applicants' arguments set forth in the response filed on Dec. 13, 2006,

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pages 19 and 20, and in the response filed on Aug. 31, 2006, page 17.

The objection to the specification set forth in the office action mailed on May 31, 2006, paragraph 7, has been withdrawn in response to the amendment to claim 10 filed on Dec. 13, 2006.

The rejections of claims 3-6, 16-19, and 30-33 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on May 31, 2006, paragraph 9, have been withdrawn in response to the amendments to claims 6, 19, and 33, and to applicants' arguments set forth in the response filed on Dec. 13, 2006, pages 20 and 21.

The rejection of claims 28 and 32 under 35 U.S.C. 102(b) over Bethell et al., J. Chem. Soc., Perkin Trans., 2, 1081-1086 (1996), set forth in the office action mailed on May 31, 2006, paragraph 13, has been withdrawn in response to the amendment to claim 28 filed on Dec. 13, 2006. That amendment added the limitation that in the formula recited in instant claim 28, "X comprises a 1,2-ethanediylidene group, a 1,4-phenylene-dimethylidyne group, a 2,4-cyclohexadienylidene group, a 2,5-cyclohexadienylidene group, a bicyclohexylidene-2,5,2',5'-tetraene group, a bicyclohexylidene-2,4,2',4'-tetraene group, a  $(C_6R_1R_2R_3R_4)_n$  group or a combination thereof, where the  $C_6$  group is a cyclohexadienylidene group with substituents  $R_1R_2R_3R_4$ ." Bethell

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does not teach or suggest the compound comprising the linking group X recited in instant claim 28.

The rejections of claims 1, 5, 7-14, 18, 28, and 32 under 35 U.S.C. 103(a) over US 2005/0265717 A1 (Tokarski), as evidenced by provisional application 60/483,726, and under the judicially created doctrine of obviousness-type double patenting over claims 1-17 and 22-25 of copending Application No. 10/760,039, set forth in the office action mailed on May 31, 2006, paragraphs 14 and 19, respectively, have been withdrawn in response to the amendments to claims 1, 11, and 28 filed on Dec. 13, 2006. Those amendments added the limitation that "X" in the formula recited in those claims comprises a group as described in claim 28, supra. Tokarski does not teach or suggest charge transport compounds comprising groups X recited in instant claims 1, 11, and 28. Nor does the subject matter claimed in application 10/760,039 anticipate or render obvious the compounds recited in instant claims 1, 11, and 28.

4. Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional applications upon which priority is claimed fail to provide adequate support under 35 U.S.C. 112 for claims 1-19 and 28-33 of this application for the reasons discussed in the office

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action mailed on May 31, 2006, paragraph 4, which are incorporated herein by reference.

5. The disclosure is objected to because of the following informalities:

The specification describes the teachings in copending application 10/396,536 at page 20, lines 7-10. However, the specification does not provide the current status of said application, e.g., "which is now US Patent No. . . ." or "abandoned."

Applicants' arguments filed on Dec. 13, 2006, have been fully considered but they are not persuasive. Applicants assert that the amendments to the specification filed on Dec. 13, 2006, overcome the objection.

However, the amendments to the specification filed on Dec. 13, 2006, did not provide the current status of the application disclosed at page 20, lines 7-10.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and

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use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 4, 5, 7-14, 17, 18, 28, 31, and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(1) Instant claims 1, 11, and 28 recite a charge transport material having the formula  $Y=N-N=X=N-N=Y'$  where Y and Y' comprises, each independently, a 9-fluorenylidene group and "X comprises a 1,2-ethanediylidene group, a 1,4-phenylene-dimethyldiyne group, a 2,4-cyclohexadienyliidene group, a 2,5-cyclohexadienyliidene group, a bicyclohexyliidene-2,5,2',5'-tetraene group, a bicyclohexyliidene-2,4,2',4'-tetraene group, a  $(C_6R_1R_2R_3R_4)_n$  group or a combination thereof, where the  $C_6$  group is a cyclohexadienyliidene group with substituents  $R_1R_2R_3R_4$ ."

The originally filed specification does not provide an adequate written description of the charge transport material recited in the instant claims. The originally filed specification discloses that in formula (1)  $Y=N-N=X=N-N=Y'$ , Y

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and Y' comprise, each independently, a 9-fluorenylidene group and "X is a conjugated linking group that allows the delocalization of the pi electrons in Formula (1) over at least Y and Y', such as a 1,2-ethanediylidene group, a 1,4-phenylene-dimethylidyne group, a 2,4-cyclohexadienyliidene group, a 2,5-cyclohexadienyliidene group, a bicyclohexyliidene-2,5,2',5'-tetraene group, a bicyclohexyliidene-2,4,2',4'-tetraene group, or a combination thereof" (emphasis added). See the originally filed specification, page 3, lines 1-5, page 8, lines 16-21, and page 21, lines 15-20; and originally filed claims 1, 11, and 28. The instant claims do not require that X be "a conjugated linking group that allows the delocalization of the pi electrons in Formula (1) over at least Y and Y'." The instant claims merely require that "X comprises a [recited groups] . . . or a combination thereof . . ." That description of "X" in instant claims 1, 11, and 28 is broader than the originally filed description of "X" because it includes non-conjugated linking groups that do not allow "the delocalization of the pi electrons in Formula (1) over at least Y and Y'," such as, =CH-(CH<sub>2</sub>)<sub>30</sub>-CH=CH-CH=CH-(CH<sub>2</sub>)<sub>30</sub>-CH=, where X comprises the underlined group 1,2-ethanediylidene.

(2) In addition, the originally filed specification does not provide an adequate written for "X" in the formula recited



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in instant claims 1, 11, and 28 to be a combination of the  $(C_6R_1R_2R_3R_4)_n$  group with the other five members of the Markush group recited in instant claims 1, 11, and 28. As discussed in item (1) above, the originally filed specification discloses that in formula (1)  $Y=N-N=X=N-N=Y'$ , "X is a conjugated linking group that allows the delocalization of the pi electrons in Formula (1) over at least Y and Y', such as a 1,2-ethanediylidene group, a 1,4-phenylene-dimethylydyne group, a 2,4-cyclohexadienylidene group, a 2,5-cyclohexa-dienylidene group, a bicyclohexylidene-2,5,2',5'-tetraene group, a bicyclohexylidene-2,4,2',4'-tetraene group, or a combination thereof." There does not appear to be any disclosure in the originally filed specification that "X" can be a combination of the  $(C_6R_1R_2R_3R_4)_n$  group with the other five members of the Markush group recited in the instant claims. Applicants have not pointed out where in the originally filed specification there is an adequate written description for the "X" combination now recited in the instant claims.

8. The indicated allowability of the charge transport material of the formula recited in originally filed claims 2, 16, and 29, where "X" comprises a member of the Markush group recited in those claims, set forth in the office action mailed on May 31,

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2006, paragraph 20, is withdrawn. On further review of copending US application 10/900,785, it is deemed that the subject matter claimed in said application renders obvious the subject matter recited in those claims. Provisional obviousness-type double patenting rejections over the claims in copending US application 10/900,785 are set forth in paragraphs 10 and 11, infra.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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10. Claims 1, 5, 8, 9, 11-14, 18, 28, and 32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 and 35-42 of copending Application No. 10/900,785 (Application'785), as evidenced by that portion of the disclosure in Application'785 that supports the subject matter recited in the claims of Application'785.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed subject matter recited in Application'785 renders obvious the subject matter recited in the instant claims.

Reference claim 8, which depends from reference claim 7, which depends from reference claim 1, recites an organophotoreceptor comprising a photoconductive element and an electrically conductive substrate, where the photoconductive element comprises a charge generation material and a charge transport compound. Reference claim 9, which depends from reference claim 1, requires that the photoconductive element further comprise a second charge transport material, which meets the second charge transport material limitation recited in instant claims 8 and 9. Reference claim 19, which depends from reference claim 18, which depends from reference claim 12, recites an electrophotographic imaging apparatus comprising a

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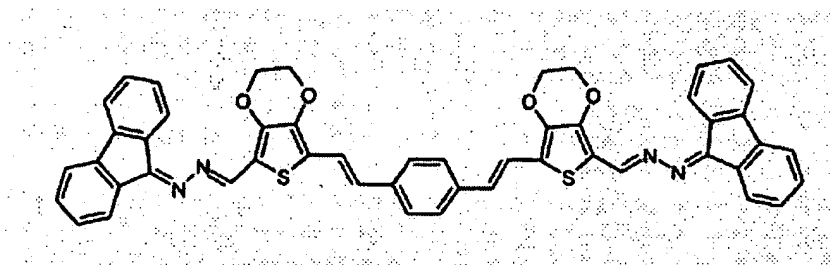
light imaging component and an organophotoreceptor comprising a photoconductive element and an electrically conductive substrate, where the photoconductive element comprises a charge generation material and a charge transport compound. Reference claim 22, which depends from reference claim 12, requires that the apparatus further comprise a toner disperser, which meets the toner disperser component recited in instant claim 12. Reference claim 20, which depends from reference claim 12, requires that the photoconductive element further comprise a charge transport material, which meets the second charge transport material limitation recited in instant claims 13 and 14. Reference claim 42, which depends from reference claim 41, which depends from reference claim 35, recites a charge transport compound.

The charge transport compound recited in reference claims 8, 19, and 42, is represented by the formula recited in reference claims 1, 12, and 35, respectively, where the group  $R_1$  is represented by either of the two formulas recited in reference claims 7, 18, and 41, and the Z groups in those two formulas can be the azine-containing-9-fluorenylidene group (i.e., the third formula) recited in reference claims 8, 19, and 42. Reference claims 5, 16, and 27, which depend from reference claims 1, 12, and 35, respectively, require that the

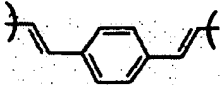
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group Y in the charge transport compound formula recited in instant claims 1, 12, and 25, be a fluorenylidenyl group and  $R_3$  be a bond between Y and the carbon atom adjacent to Y. The claims of Application'785 do not explicitly recite any examples of the charge transport material. However, that portion of Application'785 that supports the charge transport material of the formula recited in the reference claims teaches that such a charge transport material can be represented by chemical formula (3) at page 24 of Application'785.

Chemical formula (3)



The compound represented by chemical formula (3) comprises a

1,4-phenylenedimethyldiene group, , which is one of the members of the "X" Markush recited in instant claims 1, 11, and 28. Accordingly, that charge transport material meets the charge transport formula recited in reference claims 1, 5, 11, 18, 28, and 32. When addressing the issue of whether a claim in an application defines an obvious variation of an invention

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claimed in a patent, "those portions of the specification which support the patent claims may be also be examined and considered." See MPEP 804,II.B.1, p. 800-22, citing In re Vogel, 164 USPA 619, 622 (CCPA 1970). Application'785 compound (3) meets the charge transport material formula recited in the instant claims.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Application'785, as evidenced by that portion of the disclosure in Application'785 that supports the subject matter recited in the claims of Application'785, to make and use a charge transport material that is within the compositional limitations of the formula recited in the instant claims, and to use the resultant compound as the charge transport material in the organophotoreceptor and in the imaging apparatus recited in the claims of Application'785. That person would have had a reasonable expectation of successfully obtaining a charge transport compound that is capable of transporting charges in an organophotoreceptor, and an organophotoreceptor and an electrophotographic imaging apparatus that are capable of being used in an electrophotographic process to provide toned images.

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11. Claims 7 and 10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 and 35-42 of copending Application'785, as evidenced by that portion of the disclosure in Application'785 that supports the subject matter recited in the claims of Application'785, in view of Diamond, Handbook of Imaging Materials, pp. 395-396.

The subject matter recited in the claims of Application'785, as evidenced by that portion of the disclosure in Application'785 that supports the subject matter recited in the claims of Application'785, renders obvious the organophotoreceptor as described in paragraph 10 above, which is incorporated herein by reference. In addition, reference claim 11, which depends from reference claim 1, further requires that the photoconductive layer in the organophotoreceptor further comprise a binder.

The reference claims of Application'785 do not recite that the photoconductive element comprises a charge generation layer comprising the charge generation material and a polymeric binder and a charge transport layer comprising the charge transport compound and a polymeric binder as recited in instant claim 7. Nor do the claims recite that the organophotoreceptor comprises

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a flexible belt or a drum to support the electrically conductive substrate as recited in instant claim 10.

However, multi-layered photoconductive elements and the use of flexible belt or drum in organophotoreceptors are well known in the electrophotographic arts. Diamond discloses that photoreceptor fabrication involves the sequential application of one or more layers. Page 395, lines 10-11. Figure 9.7 in Diamond illustrates a "typical photoreceptor cross section." The photoreceptor in Figure 9.7 comprises a charge generation layer and a charge transport layer. Diamond discloses that the photoconductive layer can equally be a single layer that functions as both a charge generation and a charge transport layer. Page 395, lines 25-27. Diamond further discloses that the support of the photoreceptor can be a metal cylinder, i.e. a drum, or a flexible belt. Page 395, lines 12-13, and page 396, lines 4-9.

It would have been obvious for a person having ordinary skill in the art, in view of teachings in Diamond and the subject matter recited in the reference claims of Application'785, as evidenced by that portion of the disclosure in Application'785 that supports the subject matter recited in the claims of Application'785, to make and use a photoconductive element comprising a charge generation layer comprising the



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charge generation material and a polymeric binder and a charge transport layer comprising the charge transport material and a polymeric binder as recited in instant claim 7, and to use a metal cylinder or a flexible belt to support the electrically conductive substrate in the organophotoreceptor rendered obvious over the claimed subject matter recited in Application'971.

That person would have had a reasonable expectation of successfully obtaining an organophotoreceptor that is capable of being used in an electrophotographic process to provide toned images.

12. Claims 6, 19, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not teach or suggest the charge transport material selected from the Markush group recited in those claims.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the

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organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD

Feb. 22, 2007

  
**JANIS L. DOTE**  
**PRIMARY EXAMINER**  
**GROUP 1500**  
1700